

Figure 1

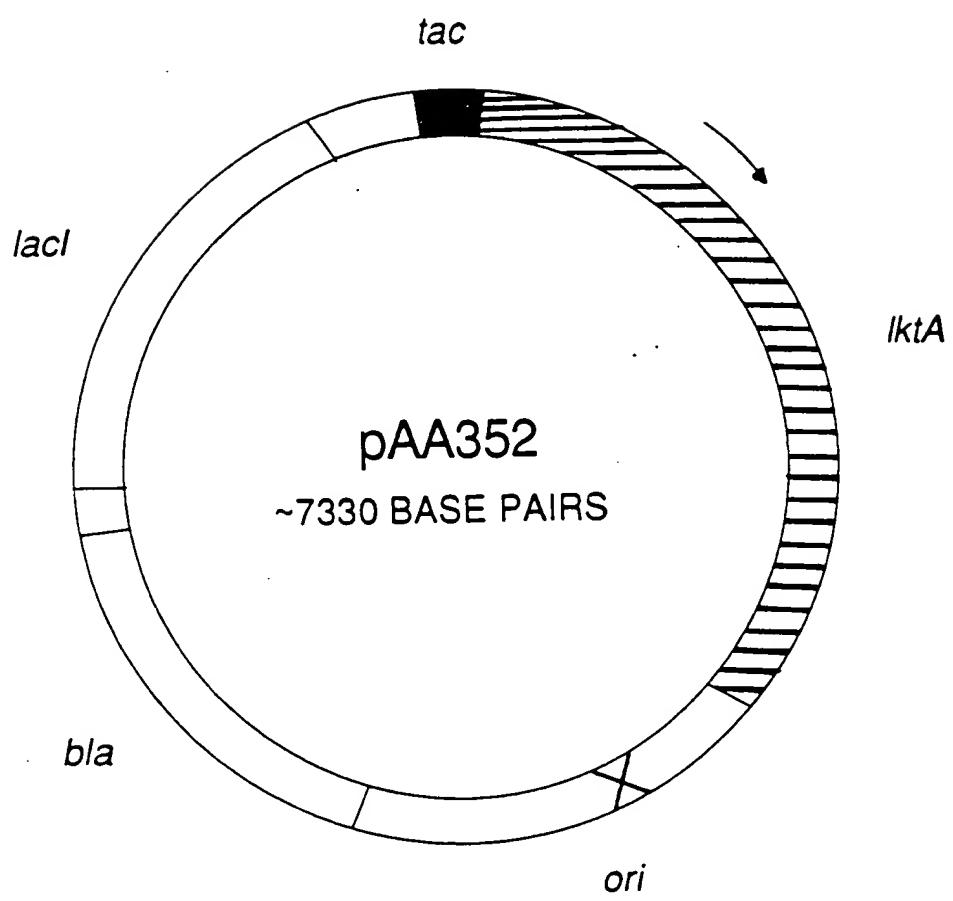


Figure 2

Figure 3-1

Figure 3-2

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Figure 3-3

Figure 3-4

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Figure 3-5

Figure 3-6

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Figure 3-7

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Figure 3-9

	2530	2540	2550	2560	2570	2580	2590	2600	2610
AAT	#	#	#	#	#	#	#	#	#
GAG	GCG	AIC	ACC	TCA	AAG	CAA	GAT	GAA	GTC
CCT	GCC	CTC	GCC	GAA	TGG	AGT	ITC	GTT	AAA
TIA	CGG	CTC	GCC	TAA	CIA	CIA	TTC	CGT	GTC
Asn	Gly	Glu	Arg	Ile	Thr	Ser	Lys	Val	Val
RECOMBINANT LEUKOTOXIN PEPTIDE									

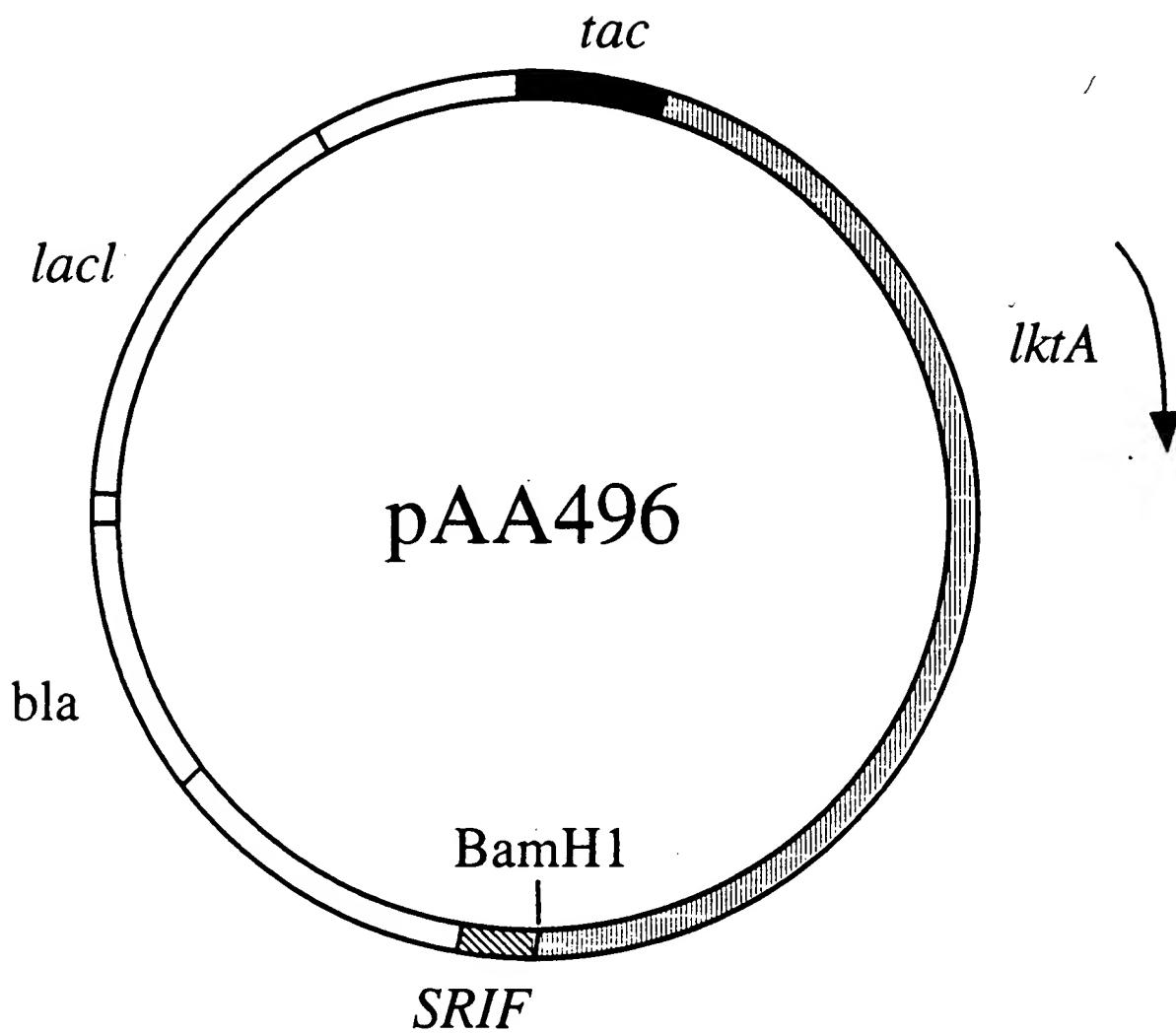
SRIF-1: 5'-GATCCACCTCTGGGGCTGGAAAACACTCTCTGAAAGCTCACCACCTGGTAGG-3'
SRIF-2: 3'-GTCGAGAACGCCGGCGGTTTGAGAAGACTTTGGAGTGGTGCACCGATCCCTAG-5'

GNRH-1: 5'-GATCTCACATTGGCACTTAAGGCGCTGGCGCTGGCTTAAG-3'
GNRH-2: 3'-AGTCGTAACTCGATGCGAACGGGGCGGGATCCCTAG-5'

VP4-1: 5'-GATCTGCAACATTTGGCTGGGACATTGGGACCTTGTCACCCGGCCAACTAACCCAGACATTGGTAG-3'
VP4-2: 3'-AACCTTGAACCGAACACTCTGAAACATGTCACCATGTCGGGGCTGAACTGTTGAAACACATGTCACCATGTCACATGTCAG-5'

Figure 4

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tac = hybrid *trp::lac* promoter from *E. coli*
bla = beta lactamase gene (*ampicillin resistance*)
lktA = *Pasteurella haemolytica structural gene*
SRIF = *SRIF structural gene*
lacI = *E. coli lac operon repressor*

Figure 5

10 20 30 40

* * * * *

ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
 TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
 Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a a a >

50 60 70 80 90

* * * * *

ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
 TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
 Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a a a >

100 110 120 130 140

* * * * *

AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
 TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
 Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a a a >

150 160 170 180 190

* * * * *

GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
 CAT GTT TCT CTT CTT GCG TTA TAA CGT TGT CGA GTT TGG TCA AAT
 Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a a a >

200 210 220 230 240

* * * * *

GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
 CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
 Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a a a >

Figure 6-1

250 260 270 280

TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
 AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
 Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

290 300 310 320 330

GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
 CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
 Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

340 350 360 370 380

ACT GTA TTA TCT GGC ATT CAA TCT ATT TTA GGC TCA GTA TTG GCT GGA
 TGA CAT AAT AGA CCG TAA GTT AGA TAA AAT CCG AGT CAT AAC CGA CCT
 Thr Val Leu Ser Gly Ile Gln Ser Ile Leu Gly Ser Val Leu Ala Gly>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

390 400 410 420 430

ATG GAT TTA GAT GAG GCC TTA CAG AAT AAC AGC AAC CAA CAT GCT CTT
 TAC CTA AAT CTA CTC CGG AAT GTC TTA TTG TCG TTG GTT GTA CGA GAA
 Met Asp Leu Asp Glu Ala Leu Gln Asn Asn Ser Asn Gln His Ala Leu>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

440 450 460 470 480

GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
 CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
 Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

490 500 510 520

AAT TCA GTA AAA ACA CTT GAC GAA TTT GGT GAG CAA ATT AGT CAA TTT
 TTA AGT CAT TTT TGT GAA CTG CTT AAA CCA CTC GTT TAA TCA GTT AAA
 Asn Ser Val Lys Thr Leu Asp Glu Phe Gly Glu Gln Ile Ser Gln Phe>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_>

Figure 6-2

530 540 550 560 570
 * * * * *
 GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
 CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
 Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

580 590 600 610 620
 * * * * *
 CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
 GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
 Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

630 640 650 660 670
 * * * * *
 ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
 TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
 Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

680 690 700 710 720
 * * * * *
 AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
 TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
 Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

730 740 750 760
 * * * * *
 AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
 TTG GTT CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
 Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

770 780 790 800 810
 * * * * *
 GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
 CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
 Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

820 830 840 850 860
 * * * * *
 TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
 AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
 Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
 _a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_>

Figure 6-3

870 880 890 900 910
* * * * * * * * * * * * * * * *
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC
CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG
Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

920 930 940 950 960
* * * * * * * * * * * * * * * *
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA
CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT
Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

970 980 990 1000
* * * * * * * * * * * * * * * *
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT
ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA
Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

1010 1020 1030 1040 1050
* * * * * * * * * * * * * * * *
ACC GCA TTG GCC GCT ATT GCT GGT GGT GTG TCT GCT GCT GCA GCC GGC
TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CGG
Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Ala Gly>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

1060 1070 1080 1090 1100
* * * * * * * * * * * * * * * *
TCG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT
AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA
Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

1110 1120 1130 1140 1150
* * * * * * * * * * * * * * * *
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC
CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG
Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a_a_a_a_>

Figure 6-4

1160 1170 1180 1190 1200
* * * * * * * * * * * * * * * *
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT
CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA
Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1210 1220 1230 1240
* * * * * * * * * * * * * * * *
CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1250 1260 1270 1280 1290
* * * * * * * * * * * * * * * *
AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1300 1310 1320 1330 1340
* * * * * * * * * * * * * * * *
CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1350 1360 1370 1380 1390
* * * * * * * * * * * * * * * *
ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1400 1410 1420 1430 1440
* * * * * * * * * * * * * * * *
GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

1450 1460 1470 1480
* * * * * * * * * * * * * * * *
GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Il Asp Val Ser>
_a_a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _a_a_a_a_>

Figure 6-5

1490 1500 1510 1520 1530

* * * * *

AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA
 TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT
 Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

1540 1550 1560 1570 1580

* * * * *

TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT
 AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA
 Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

1590 1600 1610 1620 1630

* * * * *

GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT
 CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA
 Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

1640 1650 1660 1670 1680

* * * * *

ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG
 TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC
 Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

1690 1700 1710 1720

* * * * *

CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA
 GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT
 Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

1730 1740 1750 1760 1770

* * * * *

GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT
 CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA
 Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>
a a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a a >

Figure 6-6

1780 1790 1800 1810 1820
 * * * * * * * * *
 GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA
 CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT
 Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Tyr Asp Arg>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

1830 1840 1850 1860 1870
 * * * * * * * * *
 GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC
 CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG
 Val His Tyr Ser Arg Gly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

1880 1890 1900 1910 1920
 * * * * * * * * *
 AAA GAG ACC GAG CAA GGT AGT TAT ACC GTA AAT CGT TTC GTA GAA ACC
 TTT CTC TGG CTC GTT CCA TCA ATA TGG CAT TTA GCA AAG CAT CTT TGG
 Lys Glu Thr Glu Gln Gly Ser Tyr Thr Val Asn Arg Phe Val Glu Thr>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

1930 1940 1950 1960
 * * * * * * * * *
 GGT AAA GCA CTA CAC GAA GTG ACT TCA ACC CAT ACC GCA TTA GTG GGC
 CCA TTT CGT GAT GTG CTT CAC TGA AGT TGG GTA TGG CGT AAT CAC CCG
 Gly Lys Ala Leu His Glu Val Thr Ser Thr His Thr Ala Leu Val Gly>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

1970 1980 1990 2000 2010
 * * * * * * * * *
 AAC CGT GAA GAA AAA ATA GAA TAT CGT CAT AGC AAT AAC CAG CAC CAT
 TTG GCA CTT CTT TTT TAT CTT ATA GCA GTA TCG TTA TTG GTC GTG GTA
 Asn Arg Glu Glu Lys Ile Glu Tyr Arg His Ser Asn Asn Gln His His>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

2020 2030 2040 2050 2060
 * * * * * * * * *
 GCC GGT TAT TAC ACC AAA GAT ACC TTG AAA GCT GTT GAA GAA ATT ATC
 CGG CCA ATA ATG TGG TTT CTA TGG AAC TTT CGA CAA CTT CTT TAA TAG
 Ala Gly Tyr Tyr Thr Lys Asp Thr Leu Lys Ala Val Glu Glu Ile Ile>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

2070 2080 2090 2100 2110
 * * * * * * * * *
 GGT ACA TCA CAT AAC GAT ATC TTT AAA GGT AGT AAG TTC AAT GAT GCC
 CCA TGT AGT GTA TTG CTA TAG AAA TTT CCA TCA TTC AAG TTA CTA CGG
 Gly Thr Ser His Asn Asp Ile Phe Lys Gly Ser Lys Phe Asn Asp Ala>
aa RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]aaa>

Figure 6-7

2120 2130 2140 2150 2160
 * * * * * * * * *
 TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
 AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
 Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2170 2180 2190 2200
 * * * * * * * * *
 GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
 CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
 Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2210 2220 2230 2240 2250
 * * * * * * * * *
 GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
 CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
 Gly Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu His Gly>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2260 2270 2280 2290 2300
 * * * * * * * * *
 GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
 CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
 Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2310 2320 2330 2340 2350
 * * * * * * * * *
 ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
 TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
 Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2360 2370 2380 2390 2400
 * * * * * * * * *
 AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
 TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
 Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

Figure 6-8

2410 2420 2430 2440
 * * * * * * * * *
 ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
 TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
 Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Ph Arg Glu>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2450 2460 2470 2480 2490
 * * * * * * * * *
 GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG
 CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC
 Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2500 2510 2520 2530 2540
 * * * * * * * * *
 AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG
 TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC
 Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2550 2560 2570 2580 2590
 * * * * * * * * *
 CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT
 GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA
 Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2600 2610 2620 2630 2640
 * * * * * * * * *
 GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA
 CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT
 Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2650 2660 2670 2680
 * * * * * * * * *
 AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT
 TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA
 Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

2690 2700 2710 2720 2730
 * * * * * * * * *
 ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG
 TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC
 Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met>
 _____a____a_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a____a____a____>

Figure 6-9

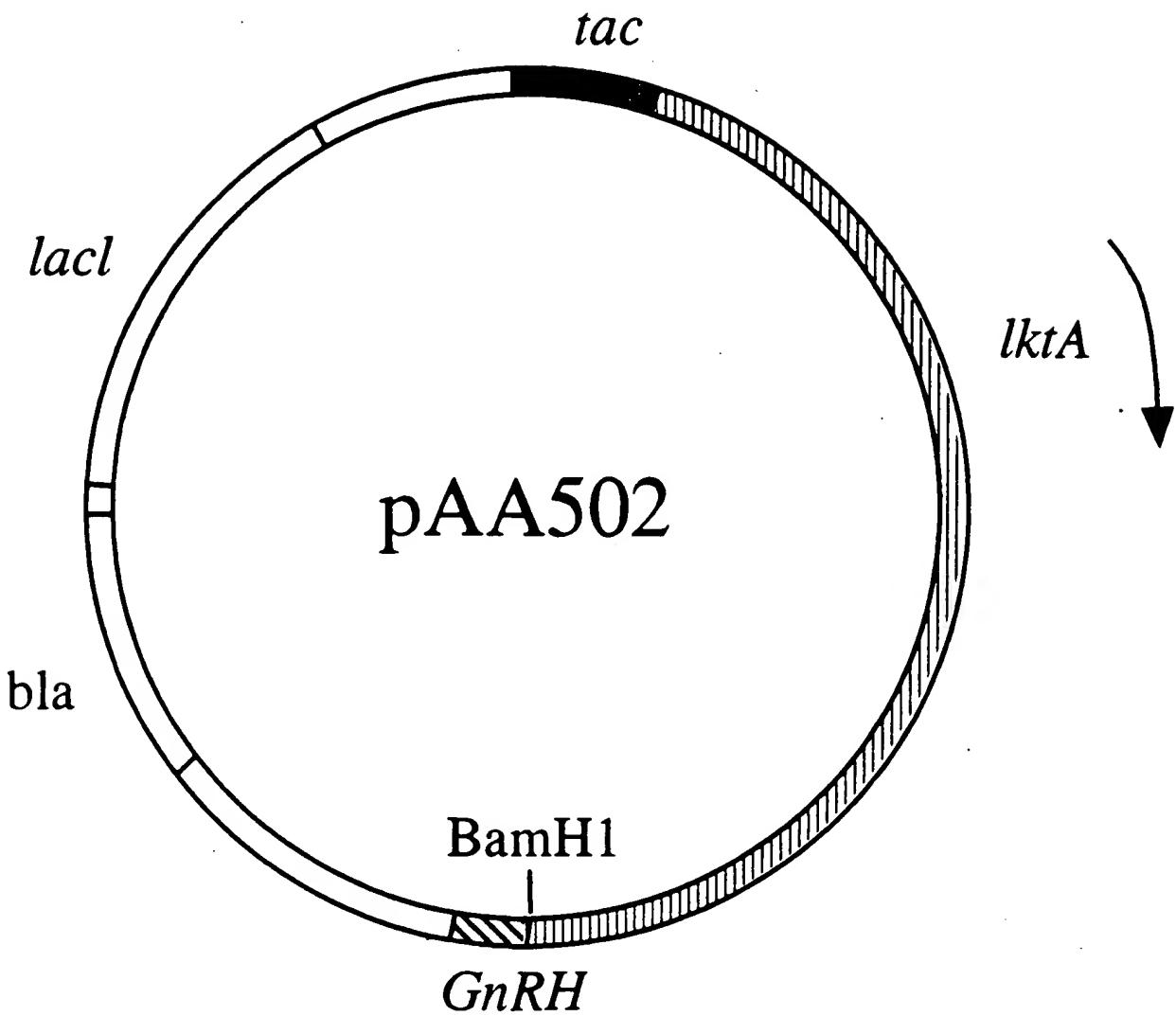
2740 2750 2760 2770 2780
 * * * * * * * *
 TTG GAT CAA AGT TTA TCT TCT CTT CAA TTT GCT AGG GGA TCC AGC TCT
 AAC CTA GTT TCA AAT AGA AGA GAA GTT AAA CGA TCC CCT AGG TCG AGA
 Leu Asp Gln Ser Leu Ser Ser Leu Gln Phe Ala Arg Gly Ser>
a RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] a a > Ser Ser>
b >

2790 2800 2810 2820 2830
 * * * * * * * * *
 TCT GCC GGC TGC AAA AAC TTC TTC TGG AAA ACC TTC ACC ACC AGC TGC TAG
 AGA CGG CCG ACG TTT TTG AAG AAG ACC TTT TGG AAG TGG TCG ACG ATC
 Ser>
> Ala Gly Cys Lys Asn Phe Phe Trp Lys Thr Phe Thr Ser Cys End>
c c c c c SRIF PEPTIDE c c c c c >

 ★
 GGATCC
 CCTAGG

Figure 6-10

06926566 - 42492



tac = hybrid *trp::lac* promoter from *E. coli*
 bla = beta lactamase gene (ampicillin resistance)
 $lktA$ = *Pasteurella haemolytica* structural gene
 $GnRH$ = *GnRH* gene
 $lacI$ = *E. coli* *lac* operon repressor

Figure 7

10 20 30 40
* * * * * * * *
ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

50 60 70 80 90
* * * * * * * *
ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

100 110 120 130 140
* * * * * * * *
AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

150 160 170 180 190
* * * * * * * *
GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
CAT GTT TCT CTT CGC TTA TAA CGT TGT CGA GTT TGG TCA AAT
Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

200 210 220 230 240
* * * * * * * *
GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

Figure 8-1

250 260 270 280

* * * * *

TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
 AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
 Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

290 300 310 320 330

* * * * *

GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
 CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
 Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

340 350 360 370 380

* * * * *

ACT GTA TTA TCT GGC ATT CAA TCT ATT TTA GGC TCA GTA TTG GCT GGA
 TGA CAT AAT AGA CCG TAA GTT AGA TAA AAT CCG AGT CAT AAC CGA CCT
 Thr Val Leu Ser Gly Ile Gln Ser Ile Leu Gly Ser Val Leu Ala Gly>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

390 400 410 420 430

* * * * *

ATG GAT TTA GAT GAG GCC TTA CAG AAT AAC AGC AAC CAA CAT GCT CTT
 TAC CTA AAT CTA CTC CGG AAT GTC TTA TTG TCG TTG GTT GTA CGA GAA
 Met Asp Leu Asp Glu Ala Leu Gln Asn Asn Ser Asn Gln His Ala Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

440 450 460 470 480

* * * * *

GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
 CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
 Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

490 500 510 520

* * * * *

AAT TCA GTA AAA ACA CTT GAC GAA TTN -GT GAG CAA ATT AGT CAA TTT
 TTA AGT CAT TTT TGT GAA CTG CTT AAN -CA CTC GTT TAA TCA GTT AAA
 Asn Ser Val Lys Thr Leu Asp Glu Xxx Cys Glu Gln Ile Ser Gln Phe>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

530 540 550 560 570

* * * * *

GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
 CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
 Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b b b >

Figure 8-2

580 590 600 610 620
* * * * *
CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

630 640 650 660 670
* * * * *
ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

680 690 700 710 720
* * * * *
AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

730 740 750 760
* * * * *
AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
TTG GTT CAA CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

770 780 790 800 810
* * * * *
GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

820 830 840 850 860
* * * * *
TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]bbb>

Figure 8-3

08976555-1121459

870	880	890	900	910
*	*	*	*	*
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC	CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG	Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
920	930	940	950	960
*	*	*	*	*
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA	CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT	Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
970	980	990	1000	
*	*	*	*	*
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT	ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA	Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
1010	1020	1030	1040	1050
*	*	*	*	*
ACC GCA TTG GCC GCT ATT GCT GGT GGT GTG TCT GCT GCT GCA GCC GGC	TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CCG	Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Ala Gly>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
1060	1070	1080	1090	1100
*	*	*	*	*
TGG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT	AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA	Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
1110	1120	1130	1140	1150
*	*	*	*	*
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC	CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG	Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				
1160	1170	1180	1190	1200
*	*	*	*	*
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT	CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA	Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b</u> <u>b</u> <u>b</u> >				

Figure 8-4

089765666 - 2020-09
1210 1220 1230 1240
* * * * * * * * * * * *
CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

1250 1260 1270 1280 1290
* * * * * * * * * * * *
AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

1300 1310 1320 1330 1340
* * * * * * * * * * * *
CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

1350 1360 1370 1380 1390
* * * * * * * * * * * *
ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

1400 1410 1420 1430 1440
* * * * * * * * * * * *
GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

1450 1460 1470 1480
* * * * * * * * * * * *
GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Ile Asp Val Ser>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

Figure 8-5

0000765666 - 3426102

1490	1500	1510	1520	1530
*	*	*	*	*
AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA	TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT	Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*
1540	1550	1560	1570	1580
*	*	*	*	*
TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT	AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA	Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*
1590	1600	1610	1620	1630
*	*	*	*	*
GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT	CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA	Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*
1640	1650	1660	1670	1680
*	*	*	*	*
ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG	TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC	Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*
1690	1700	1710	1720	
*	*	*	*	
CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA	GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT	Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	
1730	1740	1750	1760	1770
*	*	*	*	*
GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT	CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA	Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*
1780	1790	1800	1810	1820
*	*	*	*	*
GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA	CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT	Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Gly Tyr Asp Arg>	b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >	*

Figure 8-6

□□□□□□□□□□□□□□□□□□

1830	1840	1850	1860	1870
* * *	* * *	* * *	* * *	* * *
GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC				
CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG				
Val His Tyr Ser Arg Gly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				
1880	1890	1900	1910	1920
* * *	* * *	* * *	* * *	* * *
AAA GAG ACC GAG CAA GGT AGT TAT ACC GTA AAT CGT TTC GTA GAA ACC				
TTT CTC TGG CTC GTT CCA TCA ATA TGG CAT TTA GCA AAG CAT CTT TGG				
Lys Glu Thr Glu Gln Gly Ser Tyr Thr Val Asn Arg Phe Val Glu Thr>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				
1930	1940	1950	1960	
* * *	* * *	* * *	* * *	
GGT AAA GCA CTA CAC GAA GTG ACT TCA ACC CAT ACC GCA TTA GTG GGC				
CCA TTT CGT GAT GTG CTT CAC TGA AGT TGG GTA TGG CGT AAT CAC CCG				
Gly Lys Ala Leu His Glu Val Thr Ser Thr His Thr Ala Leu Val Gly>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				
1970	1980	1990	2000	2010
* * *	* * *	* * *	* * *	* * *
AAC CGT GAA GAA AAA ATA GAA TAT CGT CAT AGC AAT AAC CAG CAC CAT				
TTG GCA CTT CTT TTT TAT CTT ATA GCA GTA TCG TTA TTG GTC GTG GTA				
Asn Arg Glu Glu Lys Ile Glu Tyr Arg His Ser Asn Asn Gln His His>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				
2020	2030	2040	2050	2060
* * *	* * *	* * *	* * *	* * *
GCC GGT TAT TAC ACC AAA GAT ACC TTG AAA GCT GTT GAA GAA ATT ATC				
CGG CCA ATA ATG TGG TTT CTA TGG AAC TTT CGA CAA CTT CTT TAA TAG				
Ala Gly Tyr Tyr Thr Lys Asp Thr Leu Lys Ala Val Glu Glu Ile Ile>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				
2070	2080	2090	2100	2110
* * *	* * *	* * *	* * *	* * *
GGT ACA TCA CAT AAC GAT ATC TTT AAA GGT AGT AAG TTC AAT GAT GCC				
CCA TGT AGT GTA TTG CTA TAG AAA TTT CCA TCA TTC AAG TTA CTA CGG				
Gly Thr Ser His Asn Asp Ile Phe Lys Gly Ser Lys Phe Asn Asp Ala>				
<u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b</u> >				

Figure 8-7

2120 2130 2140 2150 2160
* * * * * * * * *
TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2170 2180 2190 2200
* * * * * * * * *
GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2210 2220 2230 2240 2250
* * * * * * * * *
GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
Gly Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu His Gly>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2260 2270 2280 2290 2300
* * * * * * * * *
GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2310 2320 2330 2340 2350
* * * * * * * * *
ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2360 2370 2380 2390 2400
* * * * * * * * *
AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

2410 2420 2430 2440
* * * * * * * * *
ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Phe Arg Glu>
____ b ____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b ____ b ____ >

Figure 8-8

□ 00026366 = 4124697

2450	2460	2470	2480	2490
GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				
2500	2510	2520	2530	2540
AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				
2550	2560	2570	2580	2590
CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				
2600	2610	2620	2630	2640
GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				
2650	2660	2670	2680	
AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				
2690	2700	2710	2720	2730
ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met> <u>b b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] <u>b b b b</u> >				

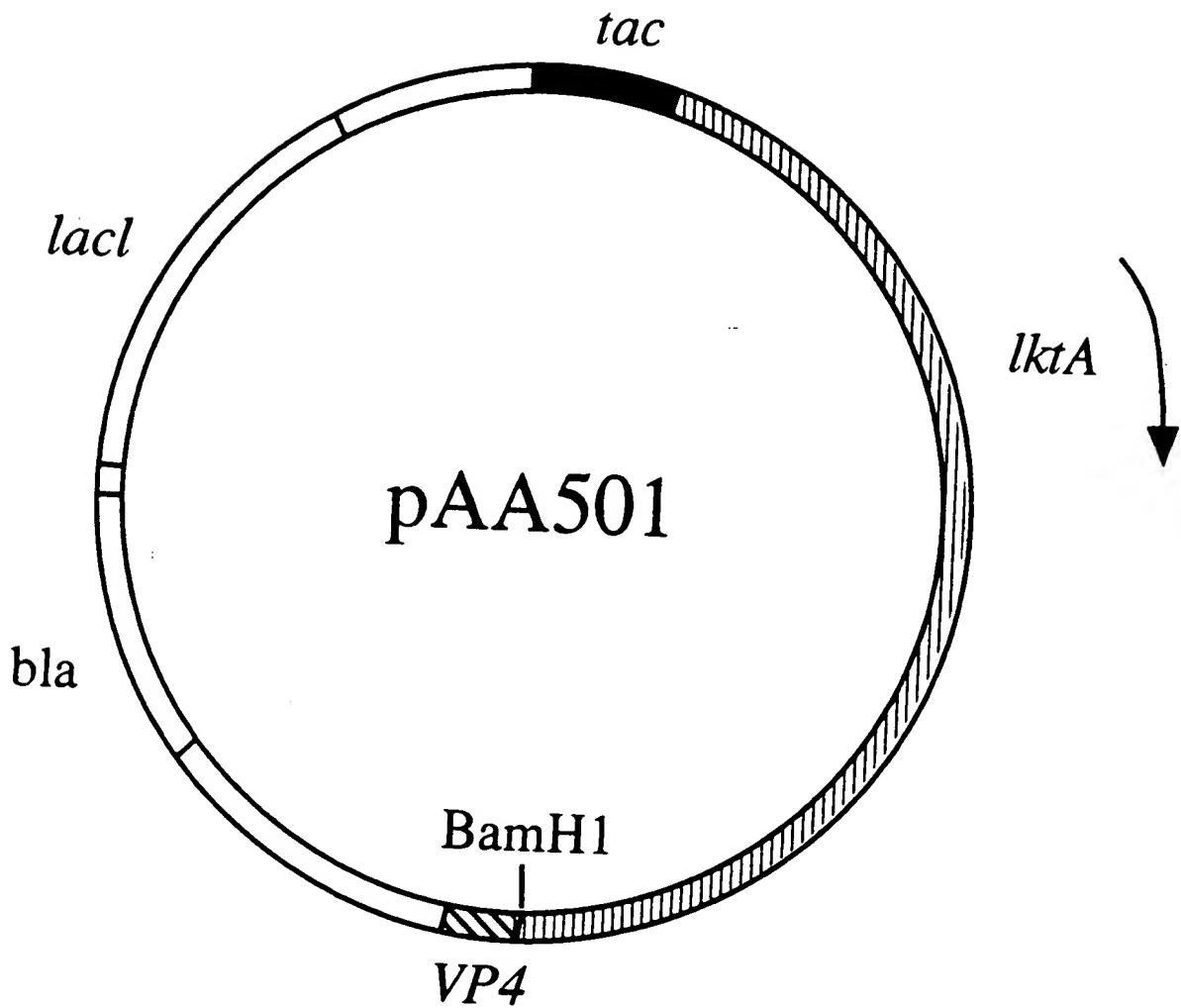
Figure 8-9

2740 2750 2760 2770 2780
* * * * * * * *
TTG GAT CAA AGT TTA TCT TCT CTT CAA TTT GCT AGG GGA TCT CAG CAT
AAC CTA GTT TCA AAT AGA AGA GAA GTT AAA CGA TCC CCT AGA GTC GTA
Gln His>
Leu Asp Gln Ser Leu Ser Ser Leu Gln Phe Ala Arg Gly Ser> a>
b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b >

2790 2800 2810
* * * * * * *
TGG AGC TAC GGC CTG CGC CCT GGC TAA GGATCC
ACC TCG ATG CCG GAC GCG GGA CCG ATT CCTAGG
Trp Ser Tyr Gly Leu Arg Pro Gly End>
a a a GNRH a a a >

Figure 8-10

08976566 4112492



tac = hybrid $trp::lac$ promoter from *E. coli*
 bla = beta lactamase gene (ampicillin resistance)
 $lktA$ = *Pasteurella haemolytica* structural gene
 $VP4$ = Bovine rotavirus VP4(232 - 255) gene
 $lacI$ = *E. coli* lac operon repressor

Figure 9

10 20 30 40

* * * * * *

ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b>

50 60 70 80 90

* * * * * * *

ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b>

100 110 120 130 140

* * * * * * *

AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b>

150 160 170 180 190

* * * * * * *

GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
CAT GTT TCT CTT CTT GCG TTA TAA CGT TGT CGA GTT TGG TCA AAT
Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b>

200 210 220 230 240

* * * * * * *

GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b>

Figure 10-1

* 250 260 270 280
 * * * * * * * *
 TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
 AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
 Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
 _____ b _____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

290 * 300 * 310 * 320 * 330
 GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
 CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
 Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

340	350	360	370	380
* *	* *	* *	* *	* *
ACT GTA TTA TCT GGC ATT	CAA TCT ATT TTA GGC TCA	GTA TTG GCT GGA		
TGA CAT AAT AGA CCG TAA	GTT AGA TAA AAT CCG AGT	CAT AAC CGA CCT		
Thr Val Leu Ser Gly Ile	Gln Ser Ile Leu Gly Ser	Val Leu Ala Gly>		
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >				

390	400	410	420	430
* * *	* * *	* * *	* * *	* *
ATG GAT TTA GAT GAG GCC	TTA CAG AAT AAC AGC	AAC CAA CAT GCT CTT		
TAC CTA AAT CTA CTC CGG	AAT GTC TTA TTG TCG TTG	GTT GTA CGA GAA		
Met Asp Leu Asp Glu Ala	Leu Gln Asn Asn Ser Asn Gln His Ala Leu>			
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >				

* 440 450 460 470 480
 * * * * * * * * * *
 GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
 CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
 Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

	490	500	510	520
*	*	*	*	*
AAT TCA GTA AAA ACA CTT GAC GAA TTN -GT GAG CAA ATT AGT CAA TTT				
TTA AGT CAT TTT TGT GAA CTG CTT AAN -CA CTC GTT TAA TCA GTT AAA				
Asn Ser Val Lys Thr Leu Asp Glu Xxx Cys Glu Gln Ile Ser Gln Phe>				
<u>b</u> <u>b</u> RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >				

530 540 550 560 570
 * * * * * * * * *
 GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
 CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
 Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
 _____ b _____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

Figure 10-2

580 590 600 610 620
* * * * *
CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

630 640 650 660 670
* * * * *
ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

680 690 700 710 720
* * * * *
AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

730 740 750 760
* * * * *
AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
TTG GTT CAA CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

770 780 790 800 810
* * * * *
GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

820 830 840 850 860
* * * * *
TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
bb RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] bbb>

Figure 10-3

870 880 890 900 910
* * * * * * * * * * * * * * * * * *
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC
CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG
Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>
____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

920 930 940 950 960
* * * * * * * * * * * * * * * * * *
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA
CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT
Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

970 980 990 1000
* * * * * * * * * * * * * * * * * *
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT
ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA
Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1010 1020 1030 1040 1050
* * * * * * * * * * * * * * * * * *
ACC GCA TTG GCC GCT ATT GCT GGT GTG TCT GCT GCT GCA GCC GGC
TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CCG
Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Ala Gly>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1060 1070 1080 1090 1100
* * * * * * * * * * * * * * * * * *
TCG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT
AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA
Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1110 1120 1130 1140 1150
* * * * * * * * * * * * * * * * * *
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC
CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG
Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1160 1170 1180 1190 1200
* * * * * * * * * * * * * * * * * *
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT
CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA
Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>
____b____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

Figure 10-4

1210 1220 1230 1240
* * * * * * * *
CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

1250 1260 1270 1280 1290
* * * * * * * * *
AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

1300 1310 1320 1330 1340
* * * * * * * * *
CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

1350 1360 1370 1380 1390
* * * * * * * * *
ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

1400 1410 1420 1430 1440
* * * * * * * * *
GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

1450 1460 1470 1480
* * * * * * * * *
GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Ile Asp Val Ser>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

Figure 10-5

1490 1500 1510 1520 1530
 * * * * * * * * * *
 AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA
 TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT
 Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1540 1550 1560 1570 1580
 * * * * * * * * *
 TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT
 AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA
 Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1590 1600 1610 1620 1630
 * * * * * * * * *
 GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT
 CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA
 Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1640 1650 1660 1670 1680
 * * * * * * * * *
 ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG
 TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC
 Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1690 1700 1710 1720
 * * * * * * * * *
 CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA
 GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT
 Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1730 1740 1750 1760 1770
 * * * * * * * * *
 GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT
 CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA
 Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

1780 1790 1800 1810 1820
 * * * * * * * * *
 GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA
 CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT
 Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Gly Tyr Asp Arg>
 _b_b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b_b_b_b_>

Figure 10-6

1830 1840 1850 1860 1870
 * * * * * * * * *
 GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC
 CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG
 Val His Tyr Ser Arg Gly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

1880 1890 1900 1910 1920
 * * * * * * * * * *
 AAA GAG ACC GAG CAA GGT AGT TAT ACC GTA AAT CGT TTC GTA GAA ACC
 TTT CTC TGG CTC GTT CCA TCA ATA TGG CAT TTA GCA AAG CAT CTT TGG
 Lys Glu Thr Glu Gln Gly Ser Tyr Thr Val Asn Arg Phe Val Glu Thr>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

1930 1940 1950 1960
 * * * * * * * * *
 GGT AAA GCA CTA CAC GAA GTG ACT TCA ACC CAT ACC GCA TTA GTG GGC
 CCA TTT CGT GAT GTG CTT CAC TGA AGT TGG GTA TGG CGT AAT CAC CCG
 Gly Lys Ala Leu His Glu Val Thr Ser Thr His Thr Ala Leu Val Gly>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

1970 1980 1990 2000 2010
 * * * * * * * * *
 AAC CGT GAA GAA AAA ATA GAA TAT CGT CAT AGC AAT AAC CAG CAC CAT
 TTG GCA CTT CTT TTT TAT CTT ATA GCA GTA TCG TTA TTG GTC GTG GTA
 Asn Arg Glu Glu Lys Ile Glu Tyr Arg His Ser Asn Asn Gln His His>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

2020 2030 2040 2050 2060
 * * * * * * * * *
 GCC GGT TAT TAC ACC AAA GAT ACC TTG AAA GCT GTT GAA GAA ATT ATC
 CGG CCA ATA ATG TGG TTT CTA TGG AAC TTT CGA CAA CTT CTT TAA TAG
 Ala Gly Tyr Tyr Thr Lys Asp Thr Leu Lys Ala Val Glu Glu Ile Ile>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

2070 2080 2090 2100 2110
 * * * * * * * * *
 GGT ACA TCA CAT AAC GAT ATC TTT AAA GGT AGT AAG TTC AAT GAT GCC
 CCA TGT AGT GTA TTG CTA TAG AAA TTT CCA TCA TTC AAG TTA CTA CGG
 Gly Thr Ser His Asn Asp Ile Phe Lys Gly Ser Lys Phe Asn Asp Ala>
 b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b b >

Figure 10-7

2120 2130 2140 2150 2160
* * * * * * * * *
TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2170 2180 2190 2200
* * * * * * * * *
GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2210 2220 2230 2240 2250
* * * * * * * * *
GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
Gly Asp Asp Phe Ile Asp Gly Gly Lys Asn Asp Leu Leu His Gly>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2260 2270 2280 2290 2300
* * * * * * * * *
GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2310 2320 2330 2340 2350
* * * * * * * * *
ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2360 2370 2380 2390 2400
* * * * * * * * *
AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

2410 2420 2430 2440
* * * * * * * * *
ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Phe Arg Glu>
b b RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] b b b >

Figure 10-8

□□□□□□□□□□□□□□□□□□

2450	2460	2470	2480	2490
*	*	*	*	*
GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG				
CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC				
Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu>				
_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				
2500	2510	2520	2530	2540
*	*	*	*	*
AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG				
TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC				
Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys>				
_____b_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				
2550	2560	2570	2580	2590
*	*	*	*	*
CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT				
GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA				
Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp>				
_____b_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				
2600	2610	2620	2630	2640
*	*	*	*	*
GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA				
CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT				
Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys>				
_____b_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				
2650	2660	2670	2680	
*	*	*	*	*
AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT				
TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA				
Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe>				
_____b_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				
2690	2700	2710	2720	2730
*	*	*	*	*
ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG				
TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC				
Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met>				
_____b_____b_____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] _b_____b_____b_____>				

Figure 10-9

2740 2750 2760 2770 2780
* * * * *
TTG GAT CAA AGT TTA TCT TCT CTT CAA TTT GCT AGG GGA TCT TGC AAC
AAC CTA GTT TCA AAT AGA AGA GAA GTT AAA CGA TCC CCT AGA ACC TTG
Cys Asn>

Leu Asp Gln Ser Leu Ser Ser Leu Gln Phe Ala Arg Gly Ser>
____a____>
____b____ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT] ____b____>

2790 2800 2810 2820 2830
* * * * * * *
ATT GTG CCT GTG AGC ATT GTG AGC CGC AAC ATT GTG TAC ACC CGC GCG
TAA CAC GGA CAC TCG TAA CAC TCG GCG TTG TAA CAC ATG TGG GCG CGC
Ile Val Pro Val Ser Ile Val Ser Arg Asn Ile Val Tyr Thr Arg Ala>
____a____a____a____a____a____a____a____|VP4____a____a____a____a____a____a____a____>

2840 2850 2860
* * * *
CAA CCT AAC CAA GAC ATT GTG TAG GATCC
GTT GGA TTG GTT CTG TAA CAC ATC CTAGG
Gln Pro Asn Gln Asp Ile Val End>
____a____a____a____|VP4____a____a____a____>

Figure 10-10